Graduation Numeracy Assessment:
Report from Markers on Student Performance

Session: January 2018

Background

The **Graduation Numeracy Assessment (GNA)** is a new provincial assessment and a graduation requirement for all students graduating after June 30, 2018.

The GNA was developed in alignment with the new curriculum and reflects international trends for large-scale assessments. Standards and expectations have been set with the educated citizen in mind, and with considerations of what a graduate should be expected to know, do and understand in a variety of realistic contexts requiring the application of numeracy.

The GNA will help to inform students about their proficiency in numeracy. Results of the GNA can be used by students and schools to support students' further learning. The GNA also provides system-level information to schools, districts and the province regarding the extent to which students are proficient in numeracy over time.

In January 2018, approximately 10,000 students participated in the managed implementation of the GNA. Full provincial implementation of the GNA is scheduled for June 2018.

BC Provincial Marking Model

The BC Provincial Marking Model utilizes fair assessment practices and scoring rubrics (answer keys) specific to each provincial assessment. Every assessment is marked and checked independently by a minimum of eight BC Certified teachers who read and score the student paper response sheets. Marking chairs review the results for reliability and consistency in scoring before the final score is assigned.

Comments from Markers

The following information is drawn from comments from the BC certified teachers who marked the January 2018 GNA. It is intended to provide teachers with feedback on students' strengths and areas to work on, as indicated by their performance on the student-choice, open-ended questions. Comments are based on the four types of tasks outlined in the *Graduation Numeracy Assessment: Design Specifications*. General comments on issues evident across tasks are also included.

1. **Reasoned Estimates** – These tasks require students to make or use estimates across multiple variables in order to build a logical argument for a possible solution

Strengths	Areas to work on
• students were able to approach the problem in several different ways – including beginning with the final constraints and working backwards to address the initial conditions • the majority of students were able to enter the problem, and demonstrate an understanding of its context • students were able to extrapolate given a graph or table of values	• in many cases students could express an intuitive solution in words, but did not provide supporting calculations • a significant portion of students did not address all features asked in the question, or address the requirements of the question • a significant portion of responses did not distinguish between linear and non-linear relations

2. **Plan and Design** – These tasks may require students to analyze time, space, cost, and people in order to make a recommendation

Strengths	Areas to work on
• students were able to address the purpose of the design, and correctly interpret the constraints of the problem • the majority of respondents included appropriate units in their solutions • students were able to correctly apply the concept of circumference and volumes in their solution	• most respondents missed a practical consideration in the problem, such as leaving out one aspect of the design, or rounding a decimal in a final answer to an inappropriate whole number • many students could not interpret a ratio when it was presented using a colon (e.g. 3:4) • assumptions to explain their thinking were often not included with their solutions

3. **Fair Share** – These tasks require students to decide how to best share something fairly

Strengths	Areas to work on
• most demonstrated an understanding of the direct relationships between two variables • the majority of students demonstrated understanding of the concept of proportion and were able to calculate proportions and percentages correctly	• in many cases students could express an intuitive solution in words, but did not to provide supporting calculations • a significant portion of students could not *apply* proportions (or percentages) to determine fair distributions • students did not consider relationships between more than two variables when determining a fair share • errors in calculations with place values for large number (1 000 000 transposed as 1000)

4. Model – These tasks require students to come up with a model or strategy, given a data set; and then to apply this model or strategy to a new data set and, if necessary, to refine the model

Strengths	Areas to work on
• most students were able to correctly interpret data presented on a graph	• a significant portion of students did not label axes on their graphs • difficulty communicating their logic reasoning in support of their graphs; supporting calculations were often not shown or were unrelated to their graphs • a significant number of students had difficulty determining the period of a cycle shown on a graph • often non-linear relationships shown on a graph were interpreted as being linear

General Comments (across all questions)

- An effectively communicated solution includes *both* relevant calculations and supporting explanations.
- As part of developing a comprehensive solution, students should revisit the question to ensure that all aspects of the problem are being addressed.
- Responses are scanned in black and white (colours do not show up). For example, students should use different plot symbols or dashes to distinguish between lines on graphs, not coloured pens.

For more information about the Graduation Numeracy Assessment, including a sample, please visit the Curriculum website.